



SET A

UNIVERSITI KUALA LUMPUR
MALAYSIA FRANCE INSTITUTE

FINAL EXAMINATION
JANUARY 2014 SESSION

SUBJECT CODE	: FED 10602
SUBJECT TITLE	: ELECTRICAL SAFETY
LEVEL	: DIPLOMA
DURATION	: 2 HOURS
DATE / TIME	:

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper **CAREFULLY**.
 2. This question paper is printed on both sides of the paper.
 3. Please write your answers on the answer booklet provided.
 4. Answers should be written in blue or black ink except for sketching, graphic and illustration.
 5. This question paper consists of **TWO (2)** sections. Section A and B. Answer all questions in Section A. For Section B, answer two (2) questions only.
 6. Answer all questions in English.
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THERE ARE 4 PRINTED PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

SECTION A (Total: 60 marks)**INSTRUCTION: Answer ALL questions.****Please use the answer booklet provided.****Question 1**

Table 1 shows statistic of electrical accidents recorded by Department of Electricity and gas Supply Malaysia from year 1991 to 1998. Answer the following questions.

- (a) State the cause of electrical accidents during maintenance work. (4 marks)
- (b) State the main causes of industrial electrical accidents. (4 marks)
- (c) State type of injuries occurring in electrical accidents. (4 marks)
- (d) State how fires can be initiated from electrical accidents. (4 marks)
- (e) State the symptoms of electrical shock. (4 marks)

Table 1: Statistic of Electrical Accidents recorded by Department of Electricity and Gas Malaysia

Statistic of electrical accidents recorded by Department of Electricity and Gas Supply, Malaysia (1991-1998)				
Year	No. of Cases	No. of Victims	Death	Not Death/ Injured
1991	88	88	38	50
1992	85	89	46	43
1993	80	80	31	49
1994	82	106	54	52
1995	94	106	60	46
1996	89	100	55	45
1997	95	101	43	58
1998	81	85	43	42

Question 2

Burns are classified as first, second or third degree depending on how deep and severe they penetrate the skin's surface.

- (f) Explain first degree burn. (3 marks)
- (g) Explain second degree burn. (3 marks)
- (h) Explain third degree burn. (3 marks)
- (i) Draw the three layer of burn depth. (2 marks)
- (j) Define flash burn. (3 marks)
- (k) Define arc burn. (3 marks)
- (l) Define electrical conduction burn. (3 marks)

Question 3

There are many causes accident occurred during maintenance works. Answer the following questions.

- (a) State why accidents occurred during maintenance works. (4 marks)
- (b) State the main causes in industrial for industrial electrical accidents. (4 marks)
- (c) State the safe working practices for industrial electrical accidents. (4 marks)
- (d) State the safe practices working on or near live conductors. (4 marks)
- (e) State the requirement for non-qualified electrical personal to enter and working within restricted areas.. (4 marks)

SECTION B (Total: 40 marks)**INSTRUCTION: Answer TWO (2) questions only****Please use the answer booklet provided.****Question 4**

There are difference between protection against direct contact and indirect contact.

- (c) State protection against direct contact.
(5 marks)
- (d) State protection against indirect contact.
(5 marks)
- (f) State four categories of residual current devices and define them.
(4 marks)
- (g) State the principle of shock protection.
(3 marks)
- (h) Draw the residual current device circuit.
(3 marks)

Question 5

No equipment shall be put into use where its strength and capability may be exceeded in such a way as may give rise to danger.

- (a) State the strength and capability of electrical equipment.
(4 marks)
- (b) State the main causes of electrical accidents involving appliances.
(4 marks)
- (c) State six fatal electrical accidents involving tools.
(6 marks)
- (d) State six safety precaution of electrical appliances.
(6 marks)

Question 6

Answer case study by referring to the electrical safety standards and regulation. Discussion on the case study must include **CONCLUSION base on the case and RECOMMENDATION to prevent death and injuries.**

- (a) Two workers in the Taiping Kedah were fatally electrocuted Wednesday when their palm oil-cutter made from Aluminium hit a power line. The accident took place as they worked on the estate belong to ABC Plantation. Before noon, a witness called PLUS helpline and to report a fire over the ABC Plantation, according to a PLUS Highway Driver spokesperson. The last thing the drivers expected to find were two men electrocuted at the plantation near the highway. The two men witnessed the accidents were a driver lorry along the PLUS highway towards Alor Setar Kedah. The incident occurred shortly before noon. The Lorry Drivers spokesperson said a palm oil cutter carry by the plantation workers reportedly came into contact with an electrical power line electrocuting him. The lorry driver workers were said hired by the Kontena Nasional transportation company where they were stopped by to due to tires puncture near the accidents area. Fire squad arrived at the scene found the victims in flames and when they put out the fire near the bush at the area.

(10 marks)

- (a) On January 22, 2011, a man faces a bleak future when both his hands were amputated following a freak accident where he suffered electric shocks while plucking oil palm fruit at an estate in Tanjung Karang, two months ago. Doctors, who are treating Muhamad Hairuman Miskon, 22, have decided to amputate both his hands below the elbow to avoid infection from spreading to other parts of his body. Hairuman's ordeal started on Nov 26, last year, when he was plucking oil palm fruit with a friend. He was using a steel rod with a hook on one end to pluck the palm oil fruit, unaware that the leaves of the tree were wet from a downpour the night before and were touching a nearby high-voltage electric cable. As soon as the rod touched the wet leaves, he suffered shocks and was thrown off about 5m. Hairuman suffered more than 50 per cent burns to his body, with both his hands totally charred. Since the accident, the victim had been admitted to several hospitals in Tanjung Karang and Sungai Buloh before he was transferred to Tengku Ampuan Rahimah Hospital.

(10 marks)

END OF QUESTION PAPER